Spatial Modeling in Transportation…

discussant: Van Kolpin - University of Oregon

- Results can be reformulated to apply in an extremely general framework.
- Arbitrary numbers of strategic competitors, shipping routes, shipping methods, final destinations, etc. and sales price of produce can depend on all of the above.
- Conclusion: Equilibrium of resultant shipping model is efficient if output is exogenously given. (2nd price auction.)

Endogenously determined production?

- Assume nonlinear pricing is allowed (unit n need not be charged at same rate as unit $n+1$).
- Shippers/farmers may now compare the profits they would receive using different shipping services for *different* quantities.
- If pricing can be contracted prior to production, then efficient equilibrium result persists.
- If pricing is contracted after production, then equilibrium need not be efficient.

Example

- 5 units : profit=10 (excluding shipping fee), actual cost to either of two shipping companies is 4.
- 10 units : profit= 20 (excluding shipping fee), actual cost to shipping company *A* is 6 and to shipping company *B* is19.
- Preproduction contract: 10 units produced. Shipping fee is 14, leaving farmer with 6 units final profit (2nd best social welfare when 5 units produced.)
- Postproduction contract: 5 unit shipping fee is 6, 10 unit shipping fee is 19. 5 units are produced in equilibrium, an inefficient outcome.

Capacity constraints?

- While capacity constraints may impact the actual production and shipping decisions, they do not impact efficiency conclusions.
- Concrete structural assumptions serve to pin down numerical predictions on realized prices, rather than to ensure efficiency.